OXOBOXO RIVER

MONTVILLE, CONNECTICUT

SEDIMENT INVESTIGATION

United States Army
Corps of Engineers
... Serving the Army
... Serving the Nation

New England Division

APRIL 1980

TABLE OF CONTENTS

1. INTRODUCTION

a. Purpose. This investigation was conducted to determine the volume and physical and chemical characteristics of the sediments in five ponds on the Oxoboxo River, in Montville, Connecticut. The intent was to update the volumes and physical characteristics given in the "Report on Methods of Removing Accumulated Deposits from the Oxoboxo River", Town of Montville, Connecticut, prepared by Roger C. Brown, Consulting Engineer for the State of Connecticut Water Resources Commission in December 1962. Additionally, it was desired to determine chemical characteristics not included in this previous report. Recommendations have also been made regarding the focus of any future studies which may be undertaken by the State of Connecticut. No detailed evaluation of the sediment characteristics or plan for removal and disposal of the sediments was requested by the State of Connecticut. This study was conducted between June and September 1979 in coordination with the State of Connecticut, Department of Environmental Protection (DEP), Water Compliance Unit.

b. Authorization. This sediment investigation of the Oxoboxo River was requested by the State of Connecticut, Department of Environmental Protection. Authority for the study was granted by the Water Resources Development Act of 1974, Section 22, Public Law 93-251, 7 March 1974, as amended by the Water Resources Development Act of 1976, Section 168, Public Law 94-587, 22 October 1976. Section 22 makes possible the use of the Corps of Engineers in a consulting role to states in the preparation of comprehensive plans for the development, utilization and conservation of water and related resources.

2. STUDY AREA

a. Location. The five ponds covered by this study are situated on the Oxoboxo River in the town of Montville, Connecticut, as shown in Appendix A, Plate 1. The Oxoboxo River flows into the Thames River at Uncasville, about nine miles north of New London, Connecticut. All five ponds are located between Wheeler Pond and the confluence of the Oxoboxo and Thames Rivers and are impounded by a series of small mill dams. Although there are six ponds in this reach, only five are covered by this study. Due to budget constraints, Bridge Street Pond was eliminated from investigation (after consultation with the Department of Environmental Protection). It is the smallest of the six ponds.

b. Description. The ponds contain large amounts of sediment and are partly overgrown with plants and shrubs with the exception of Gair Pond, which is clear of vegetation. The banks of all ponds are overgrown with trees. A brief description of each pond, beginning with the most upstream and progressing downstream, follows:

(1) Rockland Pond has a surface area of 11.7 acres and an average depth of 1.5 feet. It is estimated that 73 percent of its 58-acre-foot volume is filled with sediment. Rockland Pond supplies water to the Robertson Paper Box Company.

(2) Red Mill Pond has a surface area of about 3.3 acres and an average depth of 2.5 feet. It is estimated that 67 percent of the pond's 25-acre-foot volume is filled with sediment.

(3) Pequot Pool has a surface area of 3.7 acres and an average depth of 2 feet. It is estimated that of the 48-acre-foot volume in the pond, 79 percent is filled with sediment.

(4) Picker Pool has a surface area of 3.7 acres and an average depth of 3.2 feet. It is estimated that 65 percent of the pond's 34-acre-foot volume is filled with sediment.

(5) Gair Pond has a surface area of 8.6 acres and an average of 7 feet. It is estimated that 18 percent of the 75-acre-feet of the pond is filled with sediment.

3. COMPILED DATA

a. Mapping. A general location map for the study area (Appendix A, Plate 1) was developed from the location map in the 1962 State Report, "Methods of Removing Accumulated Deposits from the Oxoboxo River, Town of Montville, Connecticut". This map was also utilized in determining pond edge configuration. Cross-sections from the 1962 report were used to determine pond bottom elevations.

b. Surveys. Probings to locate the bottom of sediment were made in Rockland Pond, Red Mill Pond and Picker Pool. These probings were performed to verify the pond bottom levels given in the 1962 report. Soundings to locate top of sediment were made in all the ponds. Cross-sections were selected to provide accurate volumes and also to be comparable with previous section locations used in the 1962 report. Horizontal controls were established by local bench marks on dams and vertical control by points on the top of the dams. Cross-sections and locations are shown in Appendix A, Plates 1 through 6.

c. Volumes. The sediment quantities were computed using the cross-sections shown in Appendix A, Plates 2 through 6. Areas of sediment and water were scaled from each cross-section and average depths were computed. The average sediment depths were then multiplied by the applicable surface areas to obtain the volume of sediment. Data on the storage and sediment volumes for each pond are provided in the following table.

Pond Name	Surface Area (acres)	Total Storage Volume (cu. yds)	Sediment Volume (cu. yds)	% Full	1962 Sediment Volume (cu. yds.)
Rockland Pond	11.7	95,000	70,000	73	46,000
Red Mill Pond	3.3	41,000	28,000	67	24,000
Pequot Pond	3.7	95,000	75,000	79	70,000
Picker Pool	6.4	58,000	38,000	65	56,000
Gair Pond	8.6	121,000	22,000	18	29,000
TOTALS	33.7	410,000	230,000		225,000

d. Sampling and laboratory analysis. An environmental sampling plastic corer was used to obtain 13 samples from the ponds. The locations of the samples were visually noted and recorded in the field and are shown in Appendix A, Plates 2 through 6. The depths of the samples varied from 1.2 to 4.2 feet. Due to the high water content of the sediment it was not possible to recover samples to a greater depth. Details of corer operation and

construction are shown in Appendix B. The number of samples per pond and the approximate location of each sample were established jointly by the Corps and the Connecticut DEP.

Physical tests of the sediments included color classifications, wet and dry unit weights, percent solids, percent volatile solids and specific gravities performed in accordance with the procedures described in Corps of Engineers Manual EM 1110-2-1906, "Laboratory Soils Testng, 1970". These are the standard tests which are necessary to classify soil types. Chemical analysis of samples from each pond include chemical oxygen demand (COD), total Kjeldahl nitrogen (TKN), oil and grease, aluminum, cadmium, total phosphorous, mercury, lead, zinc and chromium. Additional chemical tests for Rockland Pond include arsenic, copper, iron, manganese, nickel, vanadium, and silver. All chemical analyses were performed in accordance with Standard Methods for Examination of Water and Wastewater, 1976. The additional tests were done only for Rockland Pond due to cost limitations and to its size, volume of accumulated sediments, and proximity to the former paper mill discharge. Parameter selection was made jointly by the Corps and the Connecticut DEP. An effort was made to test for substances which would likely be present in paper mill effluent. Due to instrument failure, no field ph values were taken. PCB analysis and additional chemical analysis similar to that done at Rockland Pond were requested for Red Mill Pond by the Connecticut DEP late in the study. Since all samples had been used, the request could not be accommodated. Tables of the physical and chemical test results are included in Appendix C (Tables 1 through 3). All parametric values are representative of the entire sample depth.

4. DISCUSSION.

According to the previously mentioned 1962 study, the Oxoboxo River has been polluted with industrial paper waste. There were two paper mills discharging into Rockland and Red Mill Ponds, respectively, at that time. Currently there are no paper mill discharges into the Oxoboxo River.

The current sediment deposition, expressed as a percentage of total pond storage volume, shows a general decrease progressing downstream from Pequot Pool to Gair Pond. The total volume of sediment is about 230,000 cy wet which is 5,000 cy more than that reported in the 1962 report. Variations between current and 1962 sediment volumes on a pond by pond basis were examined but could not be explained. Current values have been thoroughly checked and are believed to be correct.

The sediment contains a very high content of water as indicated by small percentages of solids and resembles paper fibers together with a small percentage of organic and sandy silts. Depending upon amount of drying and consolidation of the material after removal and placement in a spoil area, the final volume of material may be as low as 39,000 c.y. or less (assuming 95 percent dried).

The values of dry unit weight, percent solids and specific gravity of the samples show a general increase progressing downstream from Rockland Pond to Gair Pond. The inverse appears true for the percentage of volatile solids. Chemical oxygen demand, total kjeldahl nitrogen and oil and grease also show a somewhat decreased concentration with downstream distance. These relationships in conjunction with the visual observations indicate that the pulp content

decreases as soil content increases proceeding in the downstream direction. No trend could be discerned in the other parameters tested. This tends to indicate that they came from natural sources and not from paper mill wastes.

Another interesting observation occurs below Pequot Pool. The above mentioned parameters which do show a trend seem to take a sharp change at this location. The sediment appears to become less organic with a higher silt concentration. It is likely that the construction of the Connecticut Turnpike at this location contributed to this change.

A fiberous residue was noted in all samples volatilized at the standard 600°C temperature. When two samples were heated to 1000°C the fibers turned to ash. The Connecticut DEP was informed of this at the time of testing and it was decided not to pursue identification of these fibers.

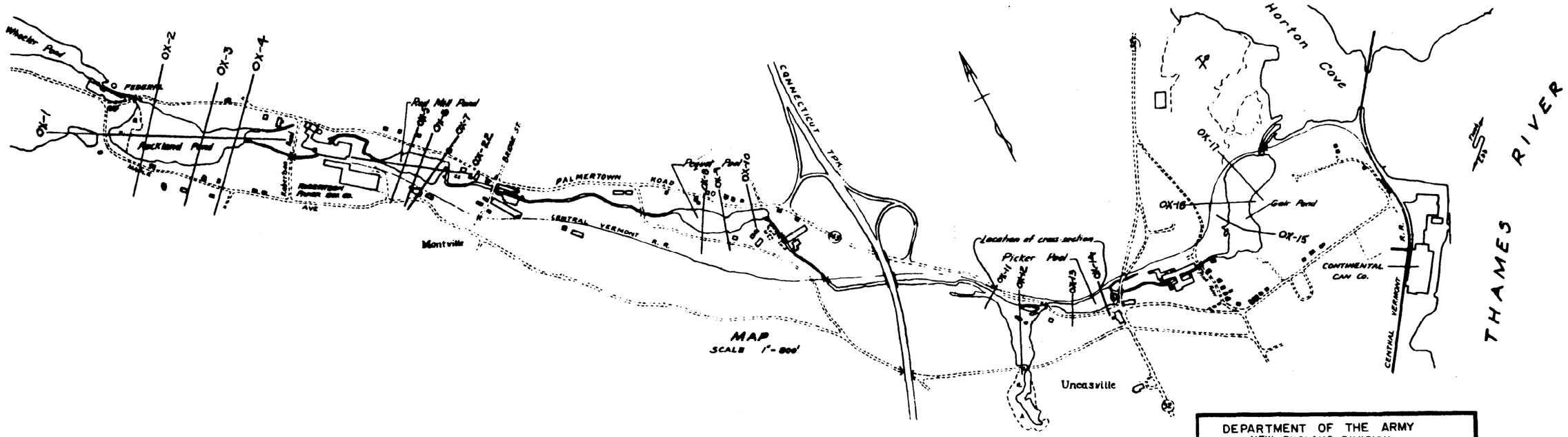
5. RECOMMENDATIONS.

If further studies of the sediment deposits in this reach of the Oxoboxo River are to be conducted several areas should be investigated:

a. An evaluation of available data should be conducted to determine if the sediment should be allowed to rest as is or if it should be removed. The environmental impacts of removal should be weighed against those of leaving things as they are.

b. If removal is desired, methods of removing and disposing of the sediment should be investigated. Possible methods include dredging in conjunction with drying and composting or incineration.

APPENDIX A



NOTE:

OX-3 DENOTES APPROXIMATE LOCATION OF HYDROGRAPHIC SURVEY

SAFETY PAYS

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION
CORPS OF ENGINEERS
WALTHAM, MASS.

DR. BY	TR. BY	CK. BY

SUBMITTED:
PROJECT ENGINEER

REVIEWED:
CHIEF, NAV & B. E. SECTION

APPROVAL RECOMMENDED:
CHIEF, DESIGN BRANCH

APPROVED DATE
CHIEF, ENGINEERING DIVISION

OXOBOXO RIVER

MONTVILLE, CONNECTICUT

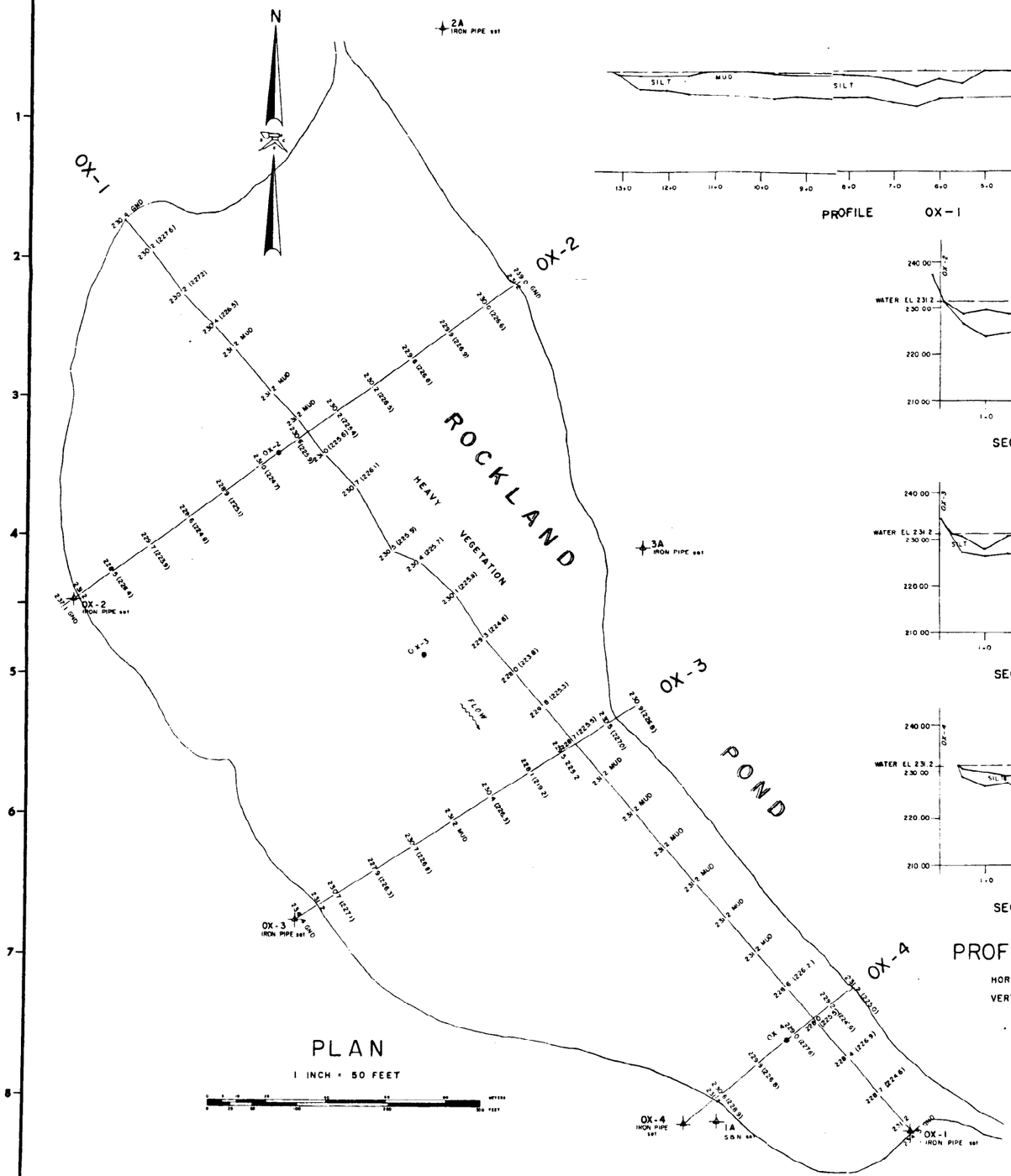
HYDROGRAPHIC SURVEY

APPENDIX A
PLATE 1

SCALE AS SHOWN SPEC. NO. DACW 33
DRAWING NUMBER

SHEET 1 OF 6

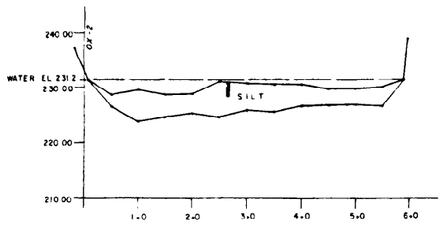
CORPS OF ENGINEERS — U. S. ARMY



PLAN

1 INCH = 50 FEET

PROFILE OX-1



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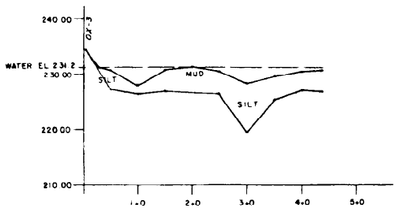

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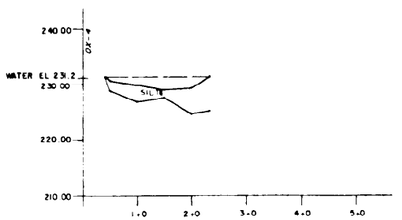

SECTION OX-4

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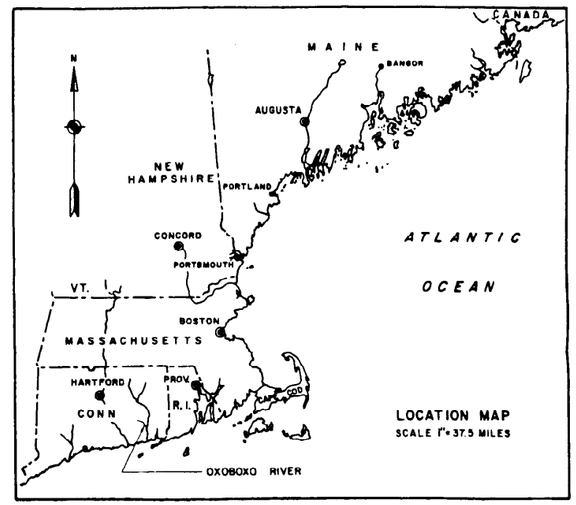
VERT 1 INCH = 10 FEET



LOCATION MAP
SCALE 1"= 37.5 MILES

GENERAL NOTES

ELEVATIONS ARE IN FEET AND TENTHS AND REFER TO THE ELEVATION OF BENCH MARK SHOWN

HYDROGRAPHY FROM SURVEY OF JULY 17, 1979 THRU AUGUST 9, 1979

FOR ADDITIONAL INFORMATION SEE FIELD BOOK R & H 3959

THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME

62.5 DENOTES ELEVATIONS OF TOP OF SILT UNLESS OTHERWISE NOTED

(60.6) DENOTES ELEVATIONS OF BOTTOM OF SILT OR REFUSAL

TOP OF DAM ELEVATIONS USED FOR BENCH MARKS WERE TAKEN FROM PLAN ENTITLED "MAP AND PROFILE OXOBOXO RIVER ... DEC. 1962"

● OX-3 DENOTES APPROXIMATE LOCATION OF SAMPLES.

8 DENOTES SAMPLES.

BENCH MARK

NE'LY END OF HIGEST CONC SPILLWAY OF DAM AT SE'LY END OF ROCKLAND POND
ELEVATION 232.00 FEET

GRAPHIC SCALES
AS SHOWN

SAFETY PAYS

REVISION	DATE	DESCRIPTION	BY

BOSTON SURVEY CONSULTANTS
263 SUMMER STREET
BOSTON, MASS

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION
CORPS OF ENGINEERS
WALTHAM, MASS

DR. BY M. HASSAN | TR. BY M. HASSAN | CK. BY R. BUCKLEY
SUBMITTED
PROJECT ENGINEER
REVIEWED
CHIEF, NAV. & B. C. SECTION
APPROVAL RECOMMENDED
CHIEF, DESIGN BRANCH

OXOBOXO RIVER
MONTVILLE, CONNECTICUT
HYDROGRAPHIC SURVEY
ROCKLAND POND

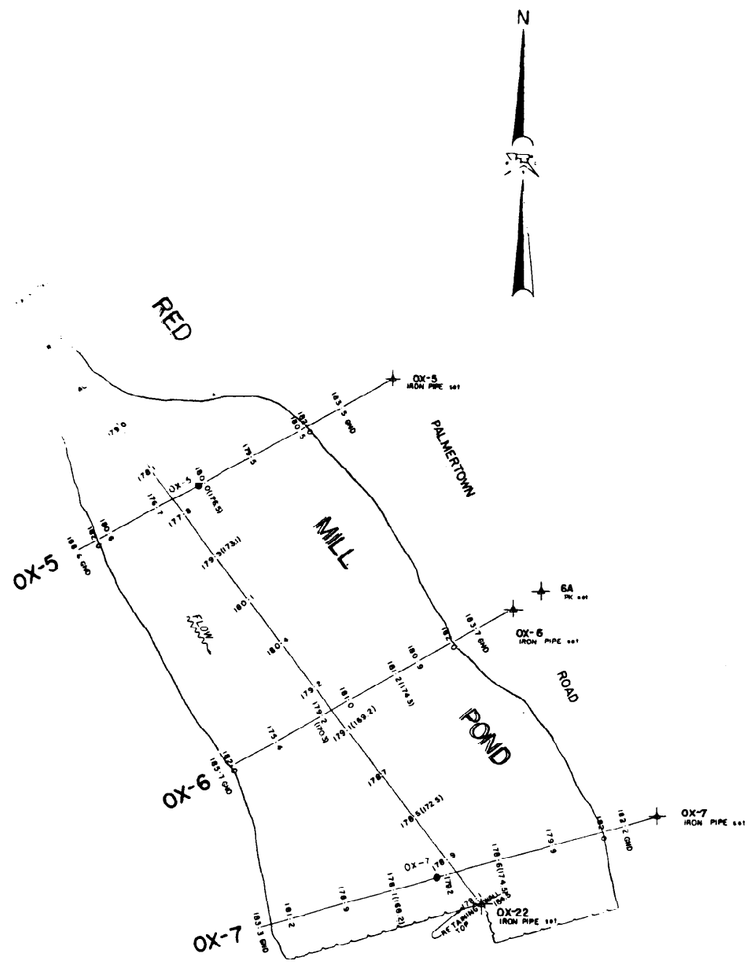
APPROVED _____ DATE _____
CHIEF, ENGINEERING DIVISION

APPENDIX A
PLATE 2

SCALE AS SHOWN | SPEC. NO. DACW 33
DRAWING NUMBER
SHEET 2 OF 6

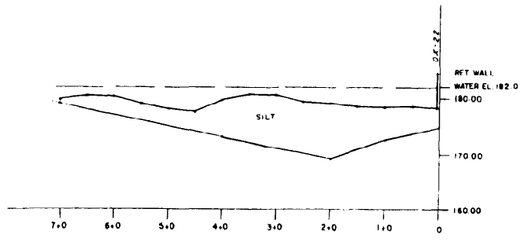
FIELD BY: PC | DRAWN BY: MH | CHECKED BY: RJB
CHG No 2529 | FILE No. 117 | JOB No. B 1792 80

CORPS OF ENGINEERS U. S. ARMY

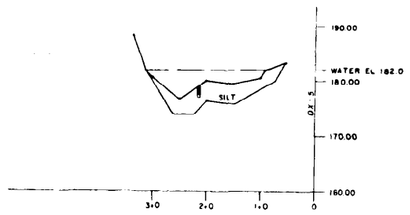


PLAN

1 INCH = 50 FEET



PROFILE



SECTION OX-5

PROFILE- SECTIONS

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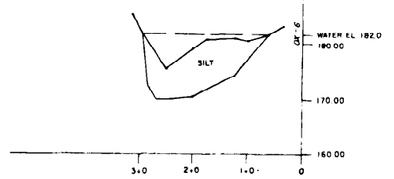

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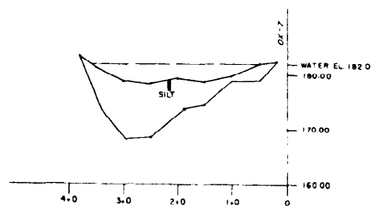


SECTION OX-7

BENCH MARK

TOP N'LY END OF WOOD SLAT SPILLWAY ON DAM AT SE'LY END OF RED MILL POND
ELEVATION 182.00 FEET

SEE SHEET 1 FOR GENERAL NOTES

SAFETY PAYS

GRAPHIC SCALES AS SHOWN

REVISION	DATE	DESCRIPTION	BY

BOSTON SURVEY CONSULTANTS
263 SUMMER STREET
BOSTON, MASS

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION
CORPS OF ENGINEERS
WALTHAM, MASS

DR. BY	TR. BY	CH. BY
F. JOHNSON	F. JOHNSON	BUCKLEY

SUBMITTED: PROJECT ENGINEER
REVIEWED: CHIEF, SURV. & E. SECTION
APPROVAL RECOMMENDED: CHIEF, ESTIMATE BRANCH

OXOBOXO RIVER
MONTVILLE, CONNECTICUT
HYDROGRAPHIC SURVEY
RED MILL POND

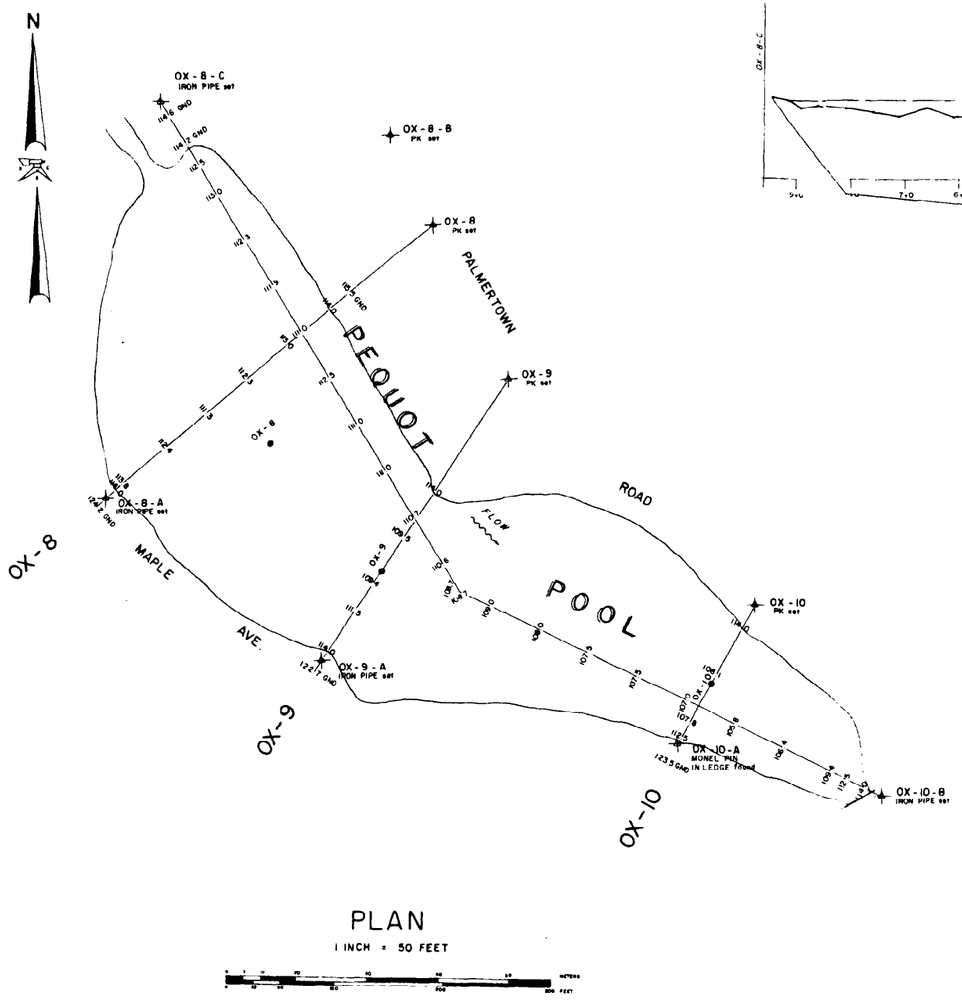
APPROVED DATE
CHIEF, ENGINEERING DIVISION

APPENDIX A
PLATE 3

SCALE AS SHOWN SPEC. NO. DACW 33
DRAWING NUMBER
SHEET 3 OF 6

FIELD BY: F.G.	DRAWN BY: F.J.	CHECKED BY: R.J.B.
DWG No. 2923-2	FILE No. 111	JOB No. B-1282.60

CORPS OF ENGINEERS — U. S. ARMY



PLAN

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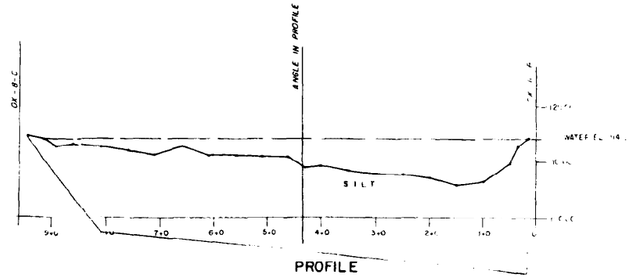

PROFILE

PROFILE - SECTIONS

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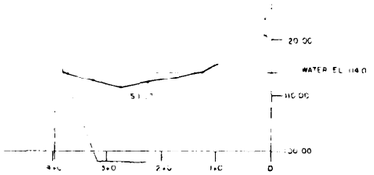
VERT 1 INCH = 10 FEET



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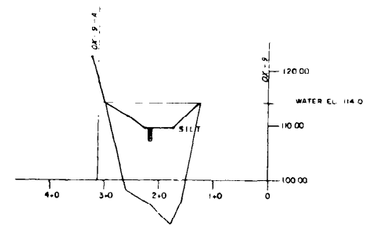

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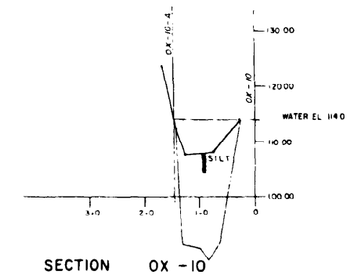


SECTION OX - 10

BENCH MARK

TOP OF DAM SPILLWAY AT SE'LY END
OF PEQUOT POOL
ELEVATION 114.00 FEET

SEE SHEET 1 FOR GENERAL NOTES

GRAPHIC SCALES

AS SHOWN

SAFETY PAYS

REVISION	DATE	DESCRIPTION	BY

BOSTON SURVEY CONSULTANTS
263 SUMMER STREET
BOSTON, MASS

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION
CORPS OF ENGINEERS
WALTHAM, MASS

DR. BY	TR. BY	CK. BY
M HASSAN	M HASSAN	R. BUCKLEY

SUBMITTED:
PROJECT ENGINEER
REVIEWED:
CHIEF, NAV. & B. I. SECTION
APPROVAL RECOMMENDED
CHIEF, DESIGN BRANCH

OXOBOXO RIVER
MONTVILLE, CONNECTICUT
HYDROGRAPHIC SURVEY
PEQUOT POOL

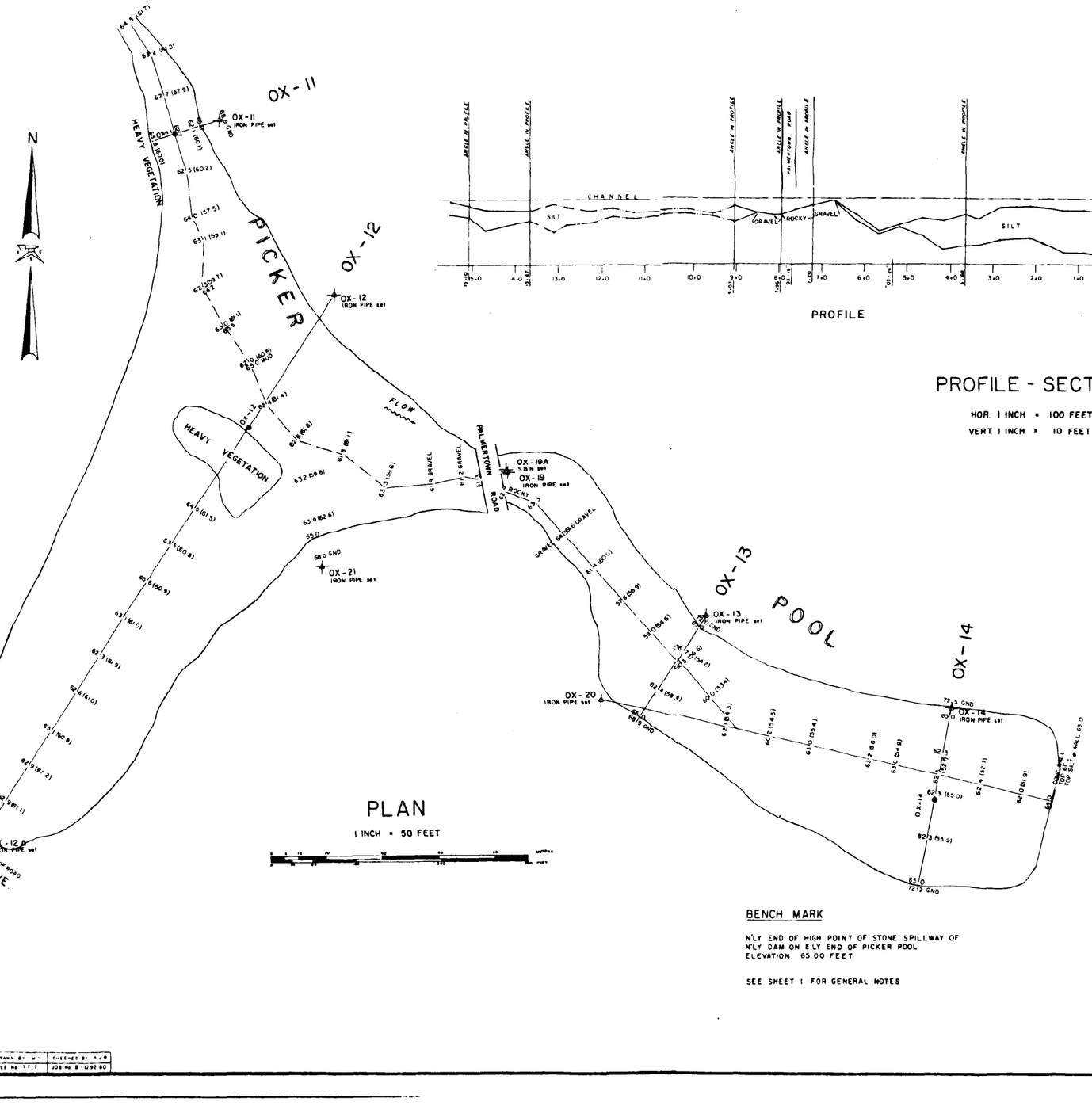
APPROVED
DATE
CHIEF, ENGINEERING DIVISION

APPENDIX A
PLATE 4

SCALE AS SHOWN SPEC. NO. DACW 33
DRAWING NUMBER
SHEET 4 OF 6

FIELD BY MJ | DRAWN BY MH | CHECKED BY RJB

CORPS OF ENGINEERS — U. S. ARMY



PLAN

1 INCH = 50 FEET

PROFILE

PROFILE - SECTIONS

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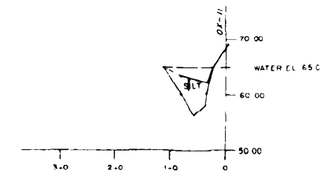
VERT. 1 INCH = 10 FEET



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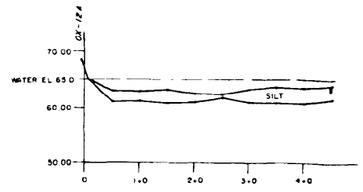

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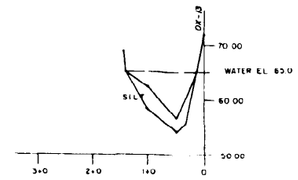

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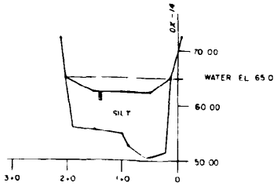


SECTION OX - 14

BENCH MARK

N'LY END OF HIGH POINT OF STONE SPILLWAY OF N'LY DAM ON E'LY END OF PICKER POOL
ELEVATION 65.00 FEET

SEE SHEET 1 FOR GENERAL NOTES

GRAPHIC SCALES
AS SHOWN

SAFETY PAYS

REVISION	DATE	DESCRIPTION	BY

BOSTON SURVEY CONSULTANTS
263 SUMMER STREET
BOSTON, MASS

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION
CORPS OF ENGINEERS
WALTHAM, MASS

DR. BY M. HASSAN | TR. BY M. HASSAN | CK. BY M. BUCKLEY
SUBMITTED: PROJECT ENGINEER
REVIEWED: CHIEF, HAY & B.T. SECTION
APPROVAL RECOMMENDED: CHIEF, DESIGN BRANCH

OXOBOXO RIVER
MONTVILLE, CONNECTICUT
HYDROGRAPHIC SURVEY
PICKER POOL

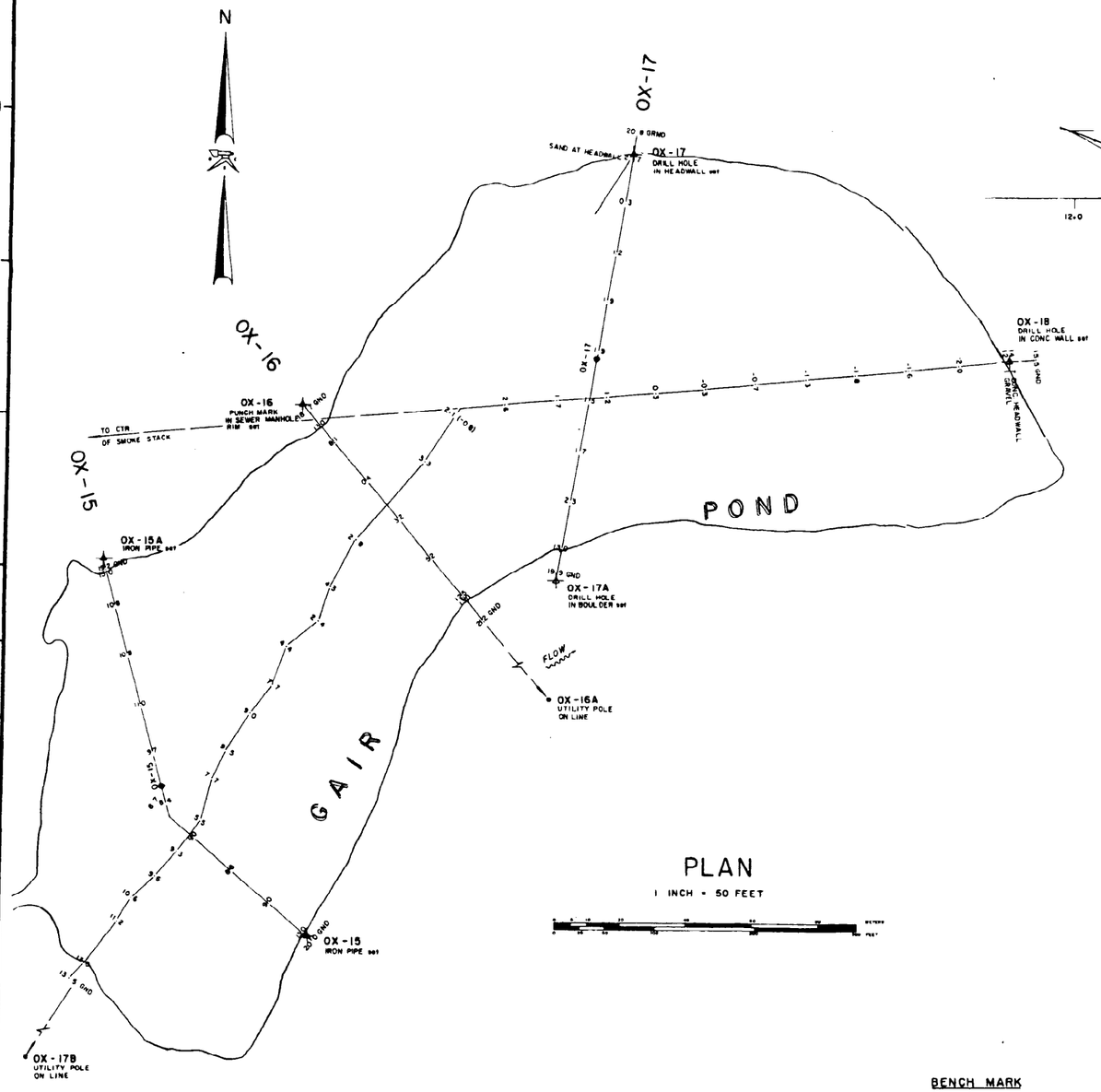
APPROVED: CHIEF, ENGINEERING DIVISION — DATE

APPENDIX A
PLATE 5

SCALE AS SHOWN | SPEC. NO DACW 33
DRAWING NUMBER
SHEET 5 OF 6

FIELD BY: M.E. | DRAWN BY: M.H. | CHECKED BY: A.J.B.
DWG No 7573-A | FILE No 77-7 | JOB No 8-1292 60

CORPS OF ENGINEERS



PLAN

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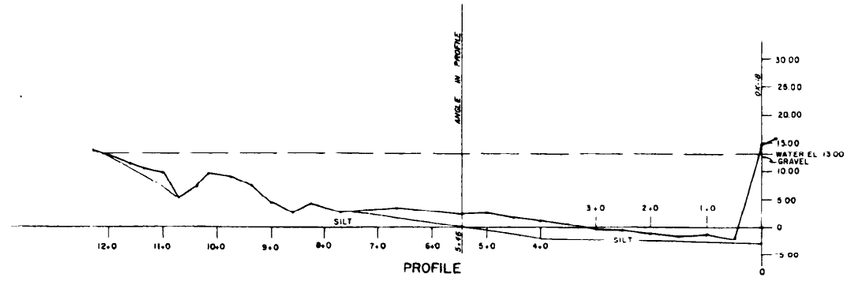
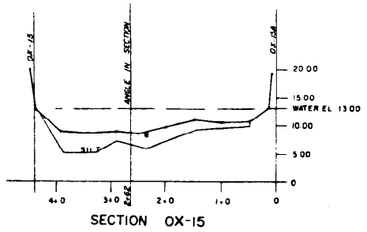
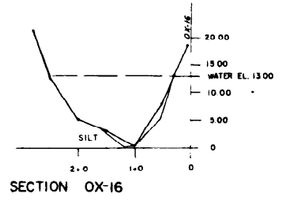


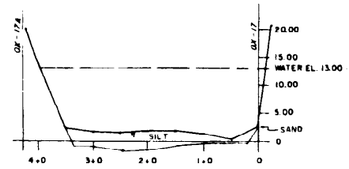


PROFILE - SECTIONS

HOR. 1 INCH = 100 FEET

VERT. 1 INCH = 10 FEET





BENCH MARK

TOP OF N'LY END OF WOOD SLAT SPILLWAY
1.6 BELOW CONC. WALL ON DAM AT E'LY END
OF GAIR POND
ELEVATION 13.00 FEET

SEE SHEET 1 FOR GENERAL NOTES

GRAPHIC SCALES
AS SHOWN

REVISION	DATE	DESCRIPTION	BY

BOSTON SURVEY CONSULTANTS
263 SUMMER STREET
BOSTON, MASS

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION
CORPS OF ENGINEERS
WALTHAM, MASS

DR BY M HASSAN | TR. BY M HASSAN | CK. BY R BUCKLEY

SUBMITTED: PROJECT ENGINEER

REVIEWED: CHIEF, NAV. & R.E. SECTION
APPROVAL RECOMMENDED
CHIEF, DESIGN BRANCH

APPROVED DATE
CHIEF, ENGINEERING DIVISION

OXOBOXO RIVER
MONTVILLE, CONNECTICUT
HYDROGRAPHIC SURVEY
GAIR POND

APPENDIX A
PLATE 6

SCALE AS SHOWN | SPEC. NO. DACW 33
DRAWING NUMBER
SHEET 6 OF 8

FIELD BY PG | DRAWN BY M.H | CHECKED BY R.J.B
DWG No 2523-5 | FILE No TTF | JOB No 8 4292 80

8/29/79

APPENDIX B

Plastic Corer for Environmental Sampling

General.

The plastic corer is a fixed piston type bottom sampler designed to obtain relatively undisturbed cores of sediment in 20 feet or less of water. Operation of the corer requires two men and a small boat for efficient operation.

The use of clear polycarbonate tubing for a sample tube allows for immediate examination of samples and once in the laboratory specific sections of the core can be removed for testing. If desired, the remainder of the samples can be stored in the tube relatively undisturbed. Sampling of the water and sediment interface is easily accomplished when required.

Assembly.

The corer "head" assembly, as shown in figure 1, is made up of a 3" x 2" rigid plastic drainage pipe "Y branch" which is reduced to a 2" female threaded coupling (for insertion of a 2" x 10' extension) on the top and has a 3" I. D. x 12" sleeve fitted with 3 thumb screws (¼ x 20) to receive and hold the 3" corer tube, figure 1. A piston is fabricated from a No. 13-½" rubber stopper which has an 8" eye bolt through its center secured with nuts and washers. A 1/8" small diameter flexible cable fitted at one end with a small swivel snap hook is attached to the piston and activates it during the sampling operation. The diameters of the plastic tubing are secured in place by electricians tape or stainless steel clamps.

Operating Sequence.

1. Assemble corer - plastice tubing in place with piston at bottom of tube.
2. Set corer to bottom.
3. Take up slack and secure piston cable to boat.

4. Mark and measure corer "stick-up" for desired sample recovery.

5. Push corer to bottom.

6. Retrieve sampler, piston cable and corer should maintain fixed relationship.

Water interface was obtained by lifting corer off bottom the desired distance, then secured piston cable. This will activate piston in water above bottom and will pick up the water sediment interface. At the Oxoboxo River impoundments the above outlined operating sequences were followed using the plastic corer. Upon the retrieval of the corer, visual classification of the material was made, the top of the plastic tube was capped and identified. The tubes were transported in ice to a refrigerator in a vertical position. Tests were made within two weeks of sampling.

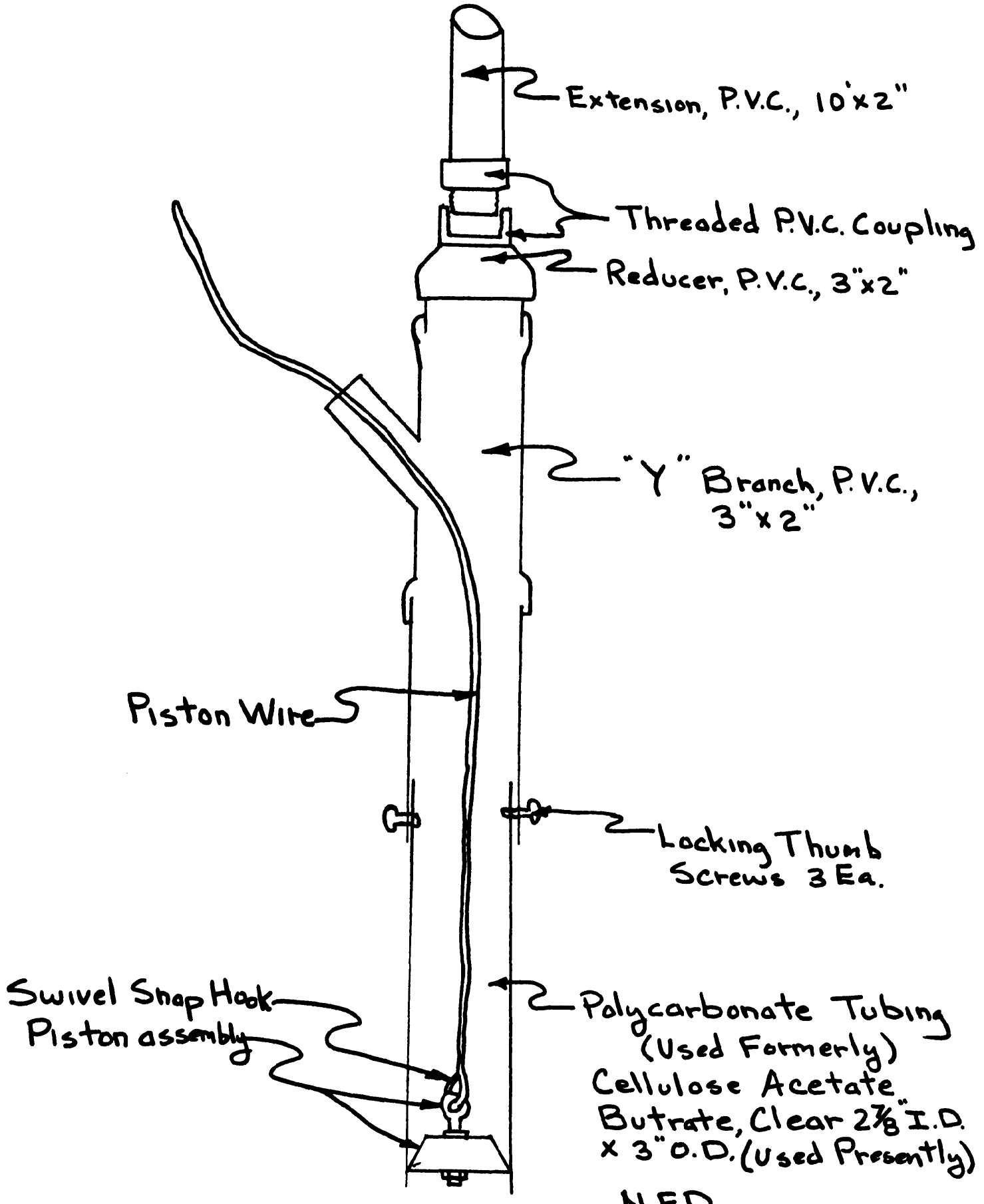
All the information from the sampling locations was recorded on NED Form No. 655, describing site location, sample location, preliminary designation, location method, depth of water, depth of material recovered, description of material, date, time of day, water state (roughness), weather code and secchi disc readings. Also, the disposition of the samples.

Evaluation.

This plastic corer has been successful in preventing "blowing off the top" of sediments and by eliminating the shock or pressure waves that occur with other types of samplers; enabling the retention of organisms capable of retreating from the sample area. The design with rubber stoppers creating a low pressure vacuum prevent loss or washout of the sample when the corer is pulled from the substrata. The low internal pressure seal is satisfactory for all but the "soupiest" sediments. This corer has obtained samples of organic silts up to six feet in length. Penetration during these samplings

have been as deep as 4.1 feet in this area.

The collection and preservation of sediments with the plastic corer was developed over a period of years at meetings exchanging information and expertise with involved engineers, chemists and technicians associated with the Environmental Protection Agency and the Corps of Engineers.


Extension, P.V.C., 10'x2"
Threaded P.V.C. Coupling
Reducer, P.V.C., 3"x2"
"Y" Branch, P.V.C., 3"x2"
Piston Wire
Locking Thumb Screws 3 Ea.
Swivel Snap Hook
Piston assembly
Polycarbonate Tubing (Used Formerly)
Cellulose Acetate Butrate, Clear 2⅜" I.D. x 3" O.D. (Used Presently)
N.E.D. Plastic Corer

APPENDIX C

OXOBOXO RIVER SECTION 22 STUDY

RESULTS OF PHYSICAL ANALYSIS

Impoundment	Station Number	Sample Depth Range (FT)	Sample Color[1]	Wet Unit Weight (PCF)	Dry Unit Weight PCF)	Percent Solids	Percent[3] Volatile Solids @600°C	Percent[4] Volatile Solids @ 1000°C	Specific Gravity
Rockland Pond	OX-2	0.0 - 2.40	Greyish-Brown	60.8	4.4	7.2	50.9	-	1.56
"	OX-3	0.0 - 2.40	Grey	63.3	7.7	11.9	39.4	-	1.99
"	OX-4	0.0 - 1.50	Grey	62.8	6.9	11.5	50.1	-	1.76
Red Mill Pond	OX-5	0.0 - 4.20	Silt	57.3	3.3	5.8	59.8	-	1.71
"	OX-7	0.0 - 3.15	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Pequot Pool	OX-8	0.0 - 3.05	Grey	63.4	6.1	9.9	36.6	-	1.97
"	OX-9	0.0 - 2.60	Grey	65.0	5.4	8.5	41.4	42.8	1.91
"	OX-10	0.0 - 4.15	Grey	60.6	5.5	9.0	47.5	-	1.82
Picker Pool	OX-11	0.0 - 1.85	Dark Grey	70.1	18.2	25.6	21.5	22.6	2.33
"	OX-12	0.0 - 1.50	Dark Grey to Brown	79.5	18.6	22.9	18.0	-	2.34
"	OX-14	0.0 - 2.95	Grey	65.6	10.4	15.9	28.2	-	2.18
Geir Pond	OX-15	0.0 - 1.45	Grey	65.5	14.7	22.0	29.8	-	2.16
"	OX-17	0.0 - 2.30	Dark Grey	65.5	12.2	18.6	33.3	-	2.07

(1) All samples have a very high content of deteriorated pulp.
(2) No tests run. This sample was delivered to State of Connecticut, Department of Environmental Protection for testing and observation.
(3) Fiberous residue was noted in all volatilized samples.
(4) Fiberous residue was volatilized in two samples heated to higher temperature.

APPENDIX C
TABLE 1

OXOBOXO RIVER SECTION 22 STUDY
RESULTS OF CHEMICAL ANALYSIS
(Part 1)

Impoundment	Station Number	Sample Depth Range (Ft)	COD	TKN	Oil & Grease	Aluminum	Cadmium	Phosphorus	Mercury	Lead	Zinc	Chromium
Rockland Pond	OX-2	0.0 - 1.19	67,000	8,400	27,600	13,300	K10	580	0.15	210	3,000	63
		1.19 - 2.40	80,000	11,000	19,400	12,400	K10	760	0.43	310	730	73
"	OX-3	0.0 - 2.40	61,000	8,200	22,900	12,700	7	590	0.32	340	1,800	54
"	OX-4	0.0 - 1.50	69,000	9,300	9,130	10,400	K 7	430	0.09	110	700	34
Red Mill Pond	OX-5	0.0 - 4.20	62,000	8,800	27,400	14,900	16	570	0.11	180	1,800	71
"	OX-7	0.0 - 3.15	74,000	9,500	30,500	15,400	K11	550	0.26	200	1,500	68
Pequot Pool	OX-8	0.0 - 3.05	62,000	11,000	21,100	15,800	K 8	830	0.11	200	1,700	65
"	OX-9	0.0 - 2.60	65,000	11,000	22,500	17,000	K10	810	0.12	170	1,300	64
"	OX-10	0.0 - 4.15	82,000	11,000	23,800	14,600	K10	710	0.19	220	1,300	83
Picker Pool	OX-11	0.0 - 1.85	20,000	5,500	4,140	13,400	K 2	350	1.3	95	230	46
"	OX-12	0.0 - 1.50	19,000	5,600	4,360	16,000	K 3	260	0.94	110	350	66
"	OX-14	0.0 - 2.95	47,000	6,900	15,700	24,300	8	700	0.38	180	1,600	62
Geir Pond	OX-15	0.0 - 1.45	43,000	6,500	14,800	15,400	14	550	0.55	240	1,200	60
"	OX-17	0.0 - 1.60	58,000	6,500	28,400	21,400	14	1,100	0.30	230	1,100	79
		1.60 - 2.30	35,000	9,300	2,540	5,880	5	440	0.58	12	410	36

NOTE: All values above are in units of ppm (mg/kg) per dry weight of sample.

K denotes denoted "less than".

APPENDIX C
TABLE 2

OXOBOXO RIVER SECTION 22 STUDY
RESULTS OF CHEMICAL ANALYSIS
(Part 2)

Impoundment	Station Number	Sample Depth Range (Ft)	Arsenic	Copper	Iron	Manganese	Nickel	Vanadium	Silver
Rockland Pond	OX-2	0.0 - 1.19	K12	250	3,610	150	40	260	K 9
		1.19 - 2.40	16	350	7,680	180	40	110	K10
"	OX-3	0.0 - 2.40	10	330	5,790	220	20	170	K 7
"	OX-4	0.0 - 1.50	8	170	6,650	270	20	130	K 7

NOTE: All values are in units of ppm (mg/kg) per dry weight of sample.

K denotes "less than".

APPENDIX C
TABLE 3